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AUTHOR Green, Kenneth C.
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ABSTRACT

This paper explores the theme of convergence in higher education, focusing specifically on the growing demand for increased access to higher education, lifelong learning to support multiple jobs and careers, and the expanse and availability of resources in information technology. The article is divided into the following sections: (1) Converging Conference Themes, discussing the outdated nature of academic writing on the topics; (2) Technology and the Organization of Academic Work, addressing the need for individuals to accept responsibility for change; (3) Great Aspirations, discussing the high expectations that academics in education have long held for the potential role of computers and other new technologies; (4) Waiting for the Revolution, expanding on the questions that exist regarding information technology-based education, and discussing content, delivery and infrastructure; (5) The Road Behind, focusing on the history of American higher education; (6) The Instructional Mission, defining its components: content, context and certification; (7) Distance Learning: Swapping Convenience for Context; (8) The Paths Ahead--Mapping the Terrain; and (9) Fear and Trembling vs. Market Segmentation, offering a view of the future. (AS)

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The Roads Behind and the Paths Ahead

Kenneth C. Green

Claremont Graduate School

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The Roads Behind and the Paths Ahead

Kenneth C. Green
Visiting Scholar, Claremont Graduate University
and Director, The Campus Computing Project

Ours is an age of convergence, or more precisely, one influenced by "multiple convergence experiences." First there is the convergence of two traditional Chinese greetings – or curses – depending on your perspective:

- *May you live in interesting times;* and
- *Be careful what you wish for, as it may come true.*

These wishes (curses?) are readily apparent for those of us who live in academe. We really do live in interesting times; moreover, many of the things long wished for by the campus community are beginning to come true.

A second set of converging issues come to us courtesy of Gordon Moore and Everett Rodgers. Moore, one of the founders of Intel, is responsible for *Moore's Law*, which describes the relationship between advances in computer (processing) power and declines in the cost of technology products. Rodgers is known for his pioneering and widely cited work on the diffusion of innovation. Imposing the curves from these seemingly unrelated concepts – the half life of technology products and the diffusion of innovation – highlights the accelerating pace of change in both technology industries and also across a global economy that is increasingly driven by technology.

Converging Conference Themes

A third set of convergence issues also affects higher education. Across the globe, the countdown to the Year 2000 also finds colleges and universities, faculty and administrators, confronting "the convergence of conference themes." All around us we see ample evidence that the often ephemeral themes and public priorities of academic and professional conferences convened over the past two decades are now part of our new realities – structural components of the emerging new world order of postsecondary education. For the campus community, in both the US and across the globe, the *things we have wished for* are now very much part of the new realities of higher education in the 21st century. Academe's wish list, as drawn from conference themes over the two or three decades, is represented by the convergence of three key issues:

- *increased access.* In both developed and developing nations, we see growing demand for increased access to higher education. Rising demand – coupled with rising expectations – are pushed by an interactive and escalating set of demographic, political, social, and economic factors.
- *lifelong learning.* We, and our students, confront a future of not one job or one career, but many. Growing numbers of adults – many with college degrees, some with many college degrees – are coming back to college and to other postsecondary providers for additional education and certification. More than ever before, individuals and employers have come to recognize that a bachelor's degree is not the end of the educational journey, but just another milestone.
- *information technology.* There is little question that "information technology" is now ubiquitous, across and beyond higher education. It's not just computers, or the Internet, or the WWW. It is the aggregated presence of Information Technology resources in virtually all facets of daily life. Higher education's clientele – our students whose ages now run from 17 to 67 – now come to college both to learn about technology, and also to learn with technology.

Our wishes are coming true. Now what do we do?

Truth be told, desspite an endless number of conference sessions, journal articles, policy documents, and strategic plans, ample evidence suggest that, as an "enterprise," higher education remains somewhat clueless about the consequences of this coming convergence. To date much (if not most) of the academic writing and the institutional planning has focused on often conventional, often very dated responses to increasingly unconventional challenges – challenges that involve demography and access, computers and information technology, lifelong and distributed learning, capacity and public policy. These are challenges that also involve a number of significant

This paper is based on a plenary session presentation, Western Cooperative for Education Telecommunications, 1998 Annual Meeting (Reno, NV October 16, 1998) © Kenneth C. Green, 1998, 1999.

financial issues. Yet like old generals, much of the academic leadership seems to be planning for (or writing about) the last war, not the current one.

But academics are very good at discussing issues and writing about them. Similar to the growing public awareness of the Y2K bug, we in higher education can identify "the problem," discuss it in endless detail, identify a wide range of end-game scenarios, and calculate the probable costs associated with a potential solution. But in the end, as I was told on the Day One of a graduate school class on public policy, implementation is the movement of cup to lip. That distance – from cup to lip – is large given the convergence issues ahead for colleges and universities across the globe.

Technology and the Organization of Academic Work

In the context of academic organizations and academic work, the responsibility for addressing the *institutional* challenges and consequences of increased access and lifelong learning will be delegated tasks. Some *other* office, some *other* administrator, some *other* part of the academic organization will ultimately be assigned to develop an institutional strategy to address these issues.

In contrast, technology is a black box; it represents the largest unknown of the three factors. Additionally technology – as represented by the recurring costs of hardware, software, networks, and IT staff – may be the most expensive of the three convergence issues. Yet, data from the 1998 Campus Computing Survey indicate that the almost half of all US colleges not have a strategic and roughly two-thirds do not have a financial plan to address the recurring costs of IT resources, IT infrastructure, instructional development, and user support.[1]

Too, for faculty, technology is clearly the most *personal* of these issues – the one that involves us, indeed engages us, directly and individually. Technology is the convergence issue that poses the most significant challenge to the professional identities of professors – identities that we as academics and professionals have worked long and hard to develop and to sustain for our colleagues, for our students, and for ourselves.

Additionally, technology forces us to confront a set of issues that seem mutually exclusive: the *high touch* (almost hand-crafted) traditions that have long held an esteemed (if increasingly mythical) place in academic work vs. a *high tech* future laden with a rich array of IT resources. Some among us believe the high tech future will save education; others are certain it will destroy , or at least undermine, traditional experiences and relationships. In between reside the vast majority of faculty and administrators who are simply struggling to assess the appropriate role of technology resources in their scholarly work, instructional activities, and institutional priorities.

The campus IT infrastructure and campus IT support services play a critical role in the way faculty use IT resources in their instructional and scholarly work. But *visualization* – the ability of individual faculty to see themselves using these resources easily and effectively, also is a significant factor. In this context, the challenges of integrating IT into scholarship, instruction, teaching, and learning are ultimately dependent on the individual behaviors, investments, and commitments of individual faculty. Yes, infrastructure fosters innovation; but the journey begins with the first steps of individual faculty who easily see themselves using these resources, much the way elite athletes are trained to visualize their performance in a major competition.

Admittedly, many in the faculty ranks have already ceded key aspects of the technology competition to their often (but not always) younger, seemingly more wired students. Many undergraduates entering college today have an envied level of comfort with the keyboard, the computer, and the Internet. But what becomes truly challenging for faculty, what raises the level of faculty discomfort and Oedipal aggression in the classroom, is when students begin to confront professors on *content* – on what we know. Two examples illustrate this point:

- *BusinessWeek*. In business schools across the United States, Friday can fear day for some faculty. Why? Because *BusinessWeek* goes online, on the WWW and AOL, on Thursday evening. This means that conscientious students might have access to relevant content days before faculty members receive the printed magazine in the mail. Given the case study method common to many b-school classes, the cover story in *BusinessWeek* might render the goal of the case study irrelevant – and the faculty member who teaches it short on current information about the company, product, or issue that is the focus of the case study and seminar session.
- *E-Mail*. Anecdotal stories from many campuses confirm that growing numbers of undergraduate and graduate students are using the Internet to make direct contact with the scholars whose work appears in a course

[1] Green, Kenneth C. *Campus Computing, 1998*. The National Study of Computing and Information Technology in American Higher Education (Encino, CA, Campus Computing), 1998. Summary information about the Campus Computing Project is available on the WWW: www.campuscomputing.net.

> syllabus. And in some instances, this means that students have approached their professors, copies of e-mail correspondence in hand, to report that "Professor Jones at Acme University says you, Prof. Smith, completely misrepresented her findings and the significance of her work in your summary discussion and comments in class last week."

Beyond these simple if increasingly common examples, there is the simmering concern among many faculty that technology may be a new administrative tool, a weapon to be used against those who resist the path to a digital Grail of IT-enhanced or IT-assisted instruction.. However, IT-engaged faculty, particularly junior faculty, have as much to fear from their departmental colleagues as they do from administrators. While few professors will enter a colleague's classroom, virtually all faculty can peer into the course syllabus and accompanying materials readily available on a course Web site.

Taken together, these examples, and others, confirm that technology remains a highly personal challenge for many in academe. We increasingly challenged to learn about it, to use it, and to incorporate it into our instructional and scholarly portfolios. At the classroom and syllabus level, instructional integration is not a task individual faculty delegate to administrators or IT staff; rather, like scholarship and other aspects of instruction, instructional integration ultimately begins with a individual initiative and interest.

Great Aspirations

Any discussion of where academe seeks to go with technology must acknowledge the great hopes many in and around education have always had for new technologies. At the turn of the last century, Thomas Edison was certain that film would supplant books as the primary resource for instruction. Yet it was the experience of film as a propaganda and training tool during the Second World War, coupled with Sputnik and the subsequent New Math/New Science movement of the late 1950s, that ultimately brought film into American classrooms. Similarly we can point to the sustained, and often unfulfilled aspirations for educational television – from the first experiments in educational programming in the late 1950s to the controversial presence of Channel 1 in thousands of high schools across the US today.

Parallel with the great expectations for the role of film and TV, we in education have long held great aspirations for the potential role of computers. Indeed, on the basis of early experiments with what today we would describe as very primitive mainframe technology, early innovators such as Stanford's Patrick Suppes were making bold predictions about the future of computers and education:

> Both the processing and the uses of information are undergoing an unprecedented technological revolution. Not only are machines now able to deal with many kinds of information at high speed and in large quantities, but it is also possible to manipulate these quantities so as to benefit from them in new ways. This is perhaps nowhere truer than in the field of education. One can predict that in a few more years millions of schoolchildren will have access to what Philip of Macedon's son Alexander enjoyed as a royal prerogative: the services of a tutor as well-informed and as responsive as Aristotle.[2]

With some minor editing to update the language, Suppes' assessment, offered in the pages of *Science* in October, 1967 – 32 years ago – could easily serve as the introductory paragraph for countless conference speeches on information technology, or as the topic sentence for campus plans and position papers.

Waiting for "The Revolution"

Today, fueled by more than four decades of aspirations and more than a dozen years of sustained (if often *ad hoc*) experimentation, information technology has finally emerged as a permanent, respected (or at least accepted), and increasingly essential component of the college experience. Walk any direction on almost college campus today and it is easy to see ample evidence of the presence of computers and information technology. Computing and information technology are finally (if slowly) moving into the mainstream of the instructional experience in many classes and on most campuses.

However, significant questions remain about the potential promise and probable limits of IT-based instruction in postsecondary education. Faculty, administrators, technical support personnel, college trustees, and state authorities, as well as the corporate patrons of higher education, continue to wrestle with an array of questions about IT that cluster into three key issues:

- *content*: how will information technology expand access to and improve the quality of the learning experience? What IT resources can or should be incorporated into teaching, learning, instruction, and scholarship?
- *delivery*: how might technology be used to enhance the delivery of instruction in both traditional and non-traditional contexts, for both traditional and non-traditional learners?; and

[2] Suppes, Patrick. The Role of Computers in Education. *Scientific American* (October, 1967).

- *infrastructure*. what kind of infrastructure (hardware, software, networks, technical support, user support and training) is required to make technology accessible, available, and effective in postsecondary education?

Moreover, against the backdrop of rising expectations and dynamic technologies remain some significant questions about the potential (and appropriate) role of technology in collegiate teaching, learning, and instruction. Does the broad (or even the focused) application of information technology – content in the syllabus or in the library, technology as the delivery vehicle for instruction – account for a significant, cost-effective benefit in the educational experience and in learning outcomes? To date, the research evidence is mixed, at best.

Have we really witnessed a "computer revolution" or experienced the "technology transformation" of higher education? *Clearly no!* More accurately, we are participating in a slow process of evolution and change, and not a revolution. It is still premature to talk about a technology-driven *transformation* of educational institutions: elementary and secondary schools, community colleges, business schools, elite research universities are still in the early stages of adopting and incorporating various kinds of information technology resources into their instructional functions. And it is hyperbole to discuss a technological revolution in education, which implies a sudden and dramatic departure from past practices – practices that reflect, in part, academic traditions that are centuries old.

Yet the data from the annual Campus Computing Survey confirm that technology, as a function and as a resource, has in fact entered the pedagogical mainstream in college and universities. The 1998 survey, ninth in the series, reveals that :

- more than two-fifths of college courses use e-mail, while fully a third of college courses draw on content from the WWW;
- more than forty percent of the nation's colleges have some sort of computer literacy or computer competency requirement;
- over sixty percent of public four-year institutions have a mandatory IT fee;
- more than three-fourths of the two- and four-year colleges have IT support centers to assist faculty with instructional integration; and
- almost half of the nation's colleges have a formal plan to use the Internet for marketing the institution to prospective students; more than half have some portion of the undergraduate application available to prospective students on the WWW. [1]

Somewhat surprising, perhaps, is that the 1998 survey also reveals that faculty are more likely than undergraduates to get a "daily dose" of the Internet: the survey data reveal that an estimated 51 percent of faculty log-on at least once a day, compared to 45 percent of all undergraduates! Although we don't have good information about how either faculty or students spend their time on-line (e-mail? library searches? shopping?), these new data may change the parameters of the discussion about IT use among to those who assume most students are "wired" – and most faculty are not.

These indicators notwithstanding, we need to acknowledge that information technology has yet to transformed classrooms, the instructional activities of most faculty, or the learning experiences of most students. Moreover, while we do know that technology changes the learning experience, we do not have hard, consistent evidence documenting enhanced academic achievement and learning outcomes. Our knowledge about (or willingness to admit) what we *don't know* about IT impacts and learning outcomes becomes increasingly important as technology emerges as a driving force in the discussions about and campus and corporate (business) plans under development for distance learning.

Consequently, we can (and should) debate, at length, fundamental questions that focus on the *application* (how we use the technology) and *impact* (what difference does it make in what and how students learn). The discussion should also address some fundamental questions about distance and distributed learning. And the debate should continue – in private conversations, in public forums, concurrent with the development of institutional and public policy – and concurrent with the development of institutional and departmental plans that address an array of strategic, curricular, and financial issues linked to the growing presence of IT in higher education.

Yet it must be an *informed* debate; unfortunately, the debate often rages on absent a broad and historical understanding of higher education's past and its future – absent an understanding of both the roads behind and the paths ahead.

The Roads Behind

American higher education is very much an organic enterprise. The real beginning of higher education in American was that (Fall?) day in 1637 when the ten young men in a longboat made their way across the Charles River from Boston to Cambridge to what would ultimately become Harvard College and later Harvard University. John Harvard's gift of some books and money to a then unnamed college in Cambridge three years after it admitted its first students was probably the

[1] Green, Kenneth C. *Campus Computing, 1998*.

least expensive "naming" opportunity in the annals of college development.[4] Yet his gift was a key catalyst for an individual college and also for what would become an important American institution.

But in both an organic and also a biblical way (as the first American colleges were founded to train both gentlemen and clergy), Harvard begot other colleges that began to populate the colonial landscape. Much like the evolution of specialized cells in an organism, the core cells split, then specialized; some even mutated in response to a changing American environment. And this model has largely defined the American experience for more than 360 years. At each step along the way, new kinds of colleges, new or specialized institutions – specialized cells – have emerged as derivatives (some might argue as mutants) of the existing enterprise, expanding the definition, the mission, and the clientele of the educational and social institution known as *The American College*. Today's American postsecondary institutions – community colleges, comprehensive institutions, liberal arts colleges, and research universities – all can trace their roots back to the initial gathering of ten young men and a few tutors in Cambridge some 360 years ago.

Why dwell on this admittedly abridged history lesson? Because as we approach the 21st century, we are again witnessing a significant *evolutionary* event in American higher education. This event is as important, and also as upsetting to the status quo, as was the 19th century birth of the land grant colleges with their focus on the "practical and agricultural sciences," and the early 20th century emergence and subsequent postwar expansion and success of community colleges. This event is the emergence of *distance education* and *distributed learning*, a phenomenon fostered to a large degree by the three convergence issues cited earlier: increased access, lifelong learning, and information technology.

Land grant institutions and community colleges were educational organizations born out of new needs in the market, new needs of a *changing* American society. To some degree, the land grant institutions were accidents and experiments – a mutation of the 18th century English college and an American derivative of the German research university. Similarly, community colleges were also a clear response to specific education and training needs that emerged in American society in the early 20th century. While endorsed by many educational leaders and public officials at the time of their birth, similar to the official sponsorship of entities such as Western Governor's University and California Virtual University today, we can also be sure that the critics of these new forms – and there were many – raised many questions about program and institutional quality, integrity, curriculum. Does this all sound a bit too familiar?

Yet distance learning is not new to the American college experience. Agricultural extension programs begun some 140 years ago in the early days of the American land-grant movement are the programmatic precursors of today's distance education initiatives. Just as much of the pedagogy in today's college classrooms has changed little from the instructional practices common a century or even three centuries ago, individuals responsible for coordinating many distance education and agricultural extension efforts fifty years ago would no doubt see much that is familiar in many of today's practices and programs. However, technology changes the instructional methodologies as well as the content, costs, and delivery of distance education.

The Instructional Mission

Asked about the mission of higher education, college presidents often (unknowingly) cite the wisdom of Howard Bowen, an economist and true scholar of higher education, and also a former college president: the mission involves research and scholarship, teaching and learning, and the public service. Focus on the *instructional* mission of higher education and three primary functions emerge: *content* (what is taught), *context* (the environment that fosters or supports instruction and learning), and *certification* (documenting outcomes). (See Figure 1.)

Content, of course, is the most traditional of the instructional functions: courses and the curriculum expose learners to new information, the structure and validity of data and information in specific disciplines and fields, methodologies linked to the generation of information, and the application of information in specific settings. Traditional assessment models focus on the mastery of content: faculty routinely test students on their knowledge of accounting, chemistry, literature, and psychology.

Context reflects the instructional and experiential variables that give individual colleges and universities their distinctive character; it also includes the experiential, non-classroom aspects of college that have a profound impact on student development and outcomes. Context can be defined in many ways: the time and place of the learning experience, interaction among students and faculty, as well as access to campus resources (e.g., libraries and computer networks) that support instruction and learning. Context also reflects the special mission of many institutions: technical

[4] Although Harvard was chartered in 1635, historians report that it took two years for the founders to get the place organized and to recruit the first class of students. See Frederick Rudolph, "The American College and University: A History (Univ. of Georgia Press, 1991).

colleges, church-affiliated institutions, women's colleges, etc. Indeed, decades of research about the impact of college on the student experience and student outcomes documents the critical impact of *contextual variables* on a wide range of outcome measures, including learning, intellectual and social development, and satisfaction with the college experience, as well as student retention and degree completion.[5]

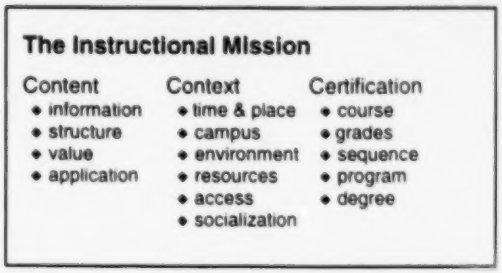

Figure 1 : The Instructional Mission of Higher Education

The third key instructional function, *certification*, is critical to both students and to society. The structured learning sequence reflected in a course syllabus or a degree program has a certain market value based on content (engineering vs. English), assessment (grades and licensing tests) and program or institutional reputations. Absent certification, potential students – educational consumers in the current parlance – might invest their time and educational dollars at Amazon.com, Borders, or Barnes & Noble rather than in college courses. (Indeed, many do!) For the moment, however, neither frequent book buyer cards nor Oprah's Book Club provide the outcome measures to test content and assess competency that are required by prospective employers: the certification function remains with colleges and other credible education providers, although not without growing challenges from a new set of for-profit contenders and for-profit organizations.

Higher education typically has addressed these three functions concurrently: the classroom and the curriculum focus on content, the campus attempts to foster a learning environment, and the institution (or departments within an institution) certify educational achievement, specific skills, and professional accomplishment.

Technology, of course, makes porous the boundaries that traditionally separate content, context, and certification. Technology brings new, rich resources into the learning experience; it can enhance the interaction *between* instructors and learners, as well as the interaction *among* learners. Too, technology can fundamentally change the way students and institutions approach assessment and certification.

Distance Learning: Swapping Convenience for Context

A careful look at the growing population of largely part-time adult learners who drive the current distance (and coming on-line) learning market suggests that most are primarily interested in *content* and *certification*. Moreover, many want specific content rather than the comprehensive offering: they need a course or two to acquire new content and to update specific skills, rather than a degree (or in many cases, yet another degree!).

Indeed, in distance learning we see that *convenience* has replaced *context* as a component of the educational experience. (This is clearly the mantra of the University of Phoenix.) In essence, the adults coming to distance learning want to learn new skills (content) and to acquire a certificate (a transcript documenting completion of specific courses or a degree program); *context* has little priority in their educational aspirations or self-assessed educational needs. Phoenix and Jones International (via Mind Extension University, now the Knowledge Network), as the first national "brands" in this arena, have understood these issues better than most traditional institutions. Although this has been a difficult learning experience for many traditional colleges and universities, the companies coming into the distance or distributed learning market certainly understand this difference.

The Paths Ahead -- Mapping the Terrain

Ted Marchese's recent paper, "Not So Distant Competitors: How New Providers are Remaking the Postsecondary Marketplace"[6] offers a thoughtful, well-paced overview of the growing number of campus and corporate ventures into distance, distributed, and on-line learning. As important as the content of this paper is the tone and tenor: Marchese provides facts, rather than a fear-laden polemic about the "barbarians (or for-profits) at the gates of academe."

Both campus and corporate entrepreneurs (or aspiring entrepreneurs) populate the new world of distance learning. But are aspirations alone adequate? The California Forty-Niners who rushed to Sutter's Mill some 150 years ago were certain they would find gold just a few inches below the soil; similarly, many colleges, academic programs, and commercial ventures are rushing into the distance and on-line education market certain that they too will find "the gold." They promise to "do good" (i.e., deliver high quality educational programs) and are confident they will "do

[5] See, for example, Alexander W. Astin, *Four Critical Years* (Jossey-Bass, 1978) and *What Matters in College* (Jossey-Bass, 1993).

[6] *AAHE Bulletin*, June 1998. Also available on the AAHE WWW site: www.aahe.org/bull_1may98.html

well" (i.e., make money). Technology is an increasingly important component of the overall plan, a core resource for both content and distribution that promises to make programs both viable and accessible.

Like the Forty-Niners 150 years ago, growing numbers of colleges and academic programs are rushing forward with little real planning or a good map of the terrain: certain there is "gold" in the not so distant hills of distance learning, many campus and public officials believe that institutions absolutely must "be there" ahead of (or at least "shoulder-to-shoulder" with) the competition — other colleges and universities as well as commercial ventures and in-house corporate training centers. Having spent some time wandering the WWW or being captive to Mind Extension University's (now the Knowledge Network's) cable offerings in hotel rooms while they travel, administrators and program coordinators are often surprisingly confident that instructional technologies (cable, video, and the Internet, among others) will provide a low-cost, high revenue distribution channel.

Alas, technology-laden distance education is neither simple nor inexpensive. It is best viewed as a business, one that involves real — and recurring — costs: money, time, personnel, content, and a significant technological infrastructure. For many campuses and academic programs that venture in, it may well be risky business. Indeed, there for colleges and corporations pursuing the distance learning market, there will be no absence of opportunity to lose money in these educational (ad)ventures.[7]

What do we know about the *business* of distance learning? The landscape of campus and corporate activities suggests three emerging business models: *Grand Brands*, *Plumbers*, and *Grand Alliances*.

The first business model approaches distance learning as a *grand brand*, rather than a process, course, or experience. Some examples of current and emerging brands include:

- *Duke University*. At the high end of the market, Duke's Fuqua School of Business recently launched a 19 month, distributed learning, Global MBA program. Tuition is $85,000, roughly twice the cost of the regular, in-residence MBA program.
- *The University of Phoenix*. Closer to the mainstream market than the Duke MBA program, but perhaps more threatening to many in academe, are the on-line degree programs of the University of Phoenix, which currently account for an estimated 10 percent of Phoenix's 56,000 (and rising) students.[8]
- *Saint Mary's-of-the-Woods College*. On a much different scale, this small women's college in Indiana has offered a very successful high-touch (and decidedly low-tech) distance learning program to women in rural communities for more than 25 years. The off-campus enrollment is roughly three times the size of the on-campus enrollment.
- *Ziff-Davis University*. A division of technology publisher Ziff -Davis, ZDU's on-line courses focus on technical training such as programming and software skills. For a whopping $7.95 a month ($69.95 a year) students can "log in any time, from any computer, to read assignments, post questions, learn on your own, or exchange ideas with instructors and fellow students." ZDU students receive both CEUs and certificates.
- *Knowledge Universe*. Potentially the stealth player in this market, Knowledge Universe, already posting revenues of some $500 million, is actually a holding company for the diverse and entrepreneurial educational investments of financier Michael Milken and Oracle Corp. Chairman Larry Ellison.

The common thread that unites this diverse set of players is that they are all building a brand, not just designing courses. The underlying marketing strategy emphasizes content *and* certification under the organizational brand.

A second type of business model addresses the *plumbing* needed for on-line and distance learning. The *plumbers* install and maintain the pipes – the bandwidth, the software, and other kinds of services – that represent the core infrastructure resources for campuses that want to buy, not build, a key components of a distance learning program.

To date the *plumbers* are primarily for-profit entities; some are very entrepreneurial. The *plumbers* include firms such as Collegis, Convene, First Class, Oracle, Real Education, and SCT, among others: these companies provide (and at times manage) components of the IT infrastructure colleges need to offer on-line instruction. To some degree, traditional college publishers such as Harcourt-Brace, McGraw-Hill, and Prentice Hall/Simon & Schuster, among others, might also be viewed as plumbers, at least in the context of site licensing agreements that allow departments, colleges, and consortia an opportunity to license content

[7] See Green, Kenneth C. The Five Cs of Distance Education: Code, Content, Curriculum, Certification – and Cash." *Update* (Software Publishers Association, April, 1998) and :"Drawn to the Light, Burned by the Flame: Money, Technology and Distance Education," *Ed Journal* (May, 1997).

[8] As an aside, total enrollment at Phoenix, as reported on the WWW site (www.uophx.edu), has risen from 33,000 in April 1997 to 56,000 as of January, 1999.

for courses and libraries. For campuses that recognize that infrastructure is a key component of distance learning, the plumbers often offer attractive, cost-effective solutions: software (or content), technical support, www hosting, technical expertise, instructional design services, content alliances, and more.

Finally, there is a third business model that is based on the notion of *grand alliances*. Often (but not always) these are campus-corporate partnerships in which a college or academic program provides content and some branding, while the corporate partner handles distribution and marketing. Examples of the grand alliance strategy include Jones International/Mind Extension University's agreements with various campuses across the country, the Caliber-Wharton agreement, and UCLA Extension's partnership with Online Learning. In the public sector, Western Governor's University, the California Virtual University, and the SREB distance learning initiative are also important examples of the grand alliance model.

Of potential interest to almost all in the higher education arena is the next round of corporate investments and product announcements. Disney and Microsoft are often cited by some as potential new entrants into the postsecondary market. Yet aside some from some formal certification services (employee training at Disney; technical certification from Microsoft), these firms seem unlikely to expand their brands to provide kinds of content and certification services offered by traditional postsecondary providers. Clearly consumers want the products, services, and experiences these companies offer; many employers view Disney and Microsoft alumni as attractive hires. But short of branding their internal training programs into a corporate university, it is hard to image that either Disney or Microsoft will enter the growing competition in postsecondary education: comprehensive educational programs and services targeting adults who pursue some market-credible mix of content, convenience, and certification in their distance learning experiences are well outside their traditional (and even expanding) sense of corporate mission and likely markets.

Perhaps some of the most interesting activity ahead in distance and distributed learning involves the potential transformation of traditional higher education publishers. As content providers, publishers play an important role in the distribution of course resources – not just books, but all the ancillaries that play an important role in many undergraduate courses. The expansion of the distant (or distributed) learning market offers new roles for publishers – and should foster a new appreciation of their current role. It also may position some publishers to move towards a Grand Brand model, adding certification services to their content development and distribution functions.

Curriculum development provides an interesting example. Prevailing notions about the faculty role in curriculum development notwithstanding, most faculty who teach the broad, general education courses in large institutions generally do not develop curriculum. Rather, they select curriculum resources from content *buckets* assembled by higher education publishers. Faculy typically develop the syllabus by compiling "off the shelf" (or even "off the Web") components. Yes, some faculty write textbooks; but the widely-used ancillaries – test questions, overheads, PowerPoint slides, etc. – which publishers create to help sell products are typically created under "work for hire" agreements.

Consequently, a big question for traditional college publishers (and also for the rest of higher education!) is if these firms can successfully convert the traditionally free ancillaries into market-credible, revenue generating products: instead of using the ancillaries to sell the books, can the ancillaries evolve to provide certain levels of certification that will gain acceptance from employers and consumers? While it may be difficult to imagine market acceptance for a college degree from McGraw-Hill, Prentice Hall/Simon & Schuster, or Wiley, no one in higher education should necessarily dismiss some sort of course-level certification in a specific content area. Indeed, some of this is already underway with Ziff-Davis University. Additionally, the technical certification programs developed by IBM, Microsoft, Novell, Oracle, and Sun, among others, that document product competency and IT skills are widely accepted in the labor market.

Therefore, in the new world order of digital content and distance learning, one pressing question involves the business models that define the future of higher education publishers: will they become grand brands, offering content, context/convenience, and certification? Are they plumbers, providing content as part of the infrastructure? Or do they enter into grand alliances – perhaps akin to Japanese-style *kiratsu* arrangements with various clients and customers? Inquiring minds want to know!

Fear and Trembling vs. Market Segmentation

What lies ahead for higher education? Offering a somewhat extreme view of the future, management sage Peter Drucker believes that "universities won't survive... higher education is in deep crisis. Already we are beginning to deliver more lectures and classes off-campus via satellite or two-way video at a fraction of the cost [of traditional courses]. The college won't survive as a residential institution. Today's [campus]

buildings are hopelessly unsuited and totally unneeded."[9]

Much like Mark Twain, who once announced that reports of his death were premature, so too it is premature, even for Peter Drucker, to announce the coming demise of the residential college, let alone "traditional" higher education, as entities swept under by the *tsunami* of online learning.

The recent history of American higher education is littered with similar predictions. At the beginning of the 1980s, there was fear and trembling across the land that the coming decline in the size of the traditional college age population – the baby bust – would cause an enrollment crisis for most institutions and force several hundred colleges to close. Yet campuses adopted to change. Between 1980 and 1996, the college matriculation rate of recent high school graduates rose from just over half to almost two-thirds of the graduating class. College enrollments, also fueled in large part by rising adult enrollments, grew from 12 to 15 million during this same period. And the number of accredited colleges and universities rose from 3000 in 1980 to more than 3500 by 1996 – not all of them satellite sites or University of Phoenix facilities.

The history of American colleges and universities – and especially the past 18 years – tell us that growing demand for higher education has contributed to further *segmentation* in the system of higher education. Yet even with the growth and segmentation, it is somewhat striking that many in the campus community assume that traditional higher education should "own" the market as it continues to expand.

Let me place this in a very personal context, a case study of my own family demographics. I'm a 47 year old "baby-boomer," a "first generation" college student. I have three college degrees. My wife has a master's degree. We have two children, ages 15 and 12. (We also have two dogs and four computers in our home!) If and when my either wife or I decide to "go back to college," what we will really want will be *content* accompanied by *convenience* – a module of accounting, Java, www graphics, etc. – available evenings, weekends, or online. Neither of us has much interest in yet another college degree.

In contrast, we absolutely want our two children to partake in the *contextual* aspects of "going to college." We hope that they will experience and enjoy college as my wife and I were fortunate to experience and enjoy our undergraduate experience – not as the accumulation of degree credits, but as a full-time educational and developmental experience. This is the concept of college that is imbedded in the preamble to the historic Higher Education Act of 1965: let all who are able experience, enjoy, and benefit from the opportunity for higher education.

But the college aspirations and educational expectations of 18 year old high school graduates clearly are *not* the same as those of the rising numbers of older students who have other identities linked to their full-time roles as parents and providers, as adults and employees (or employers). Some segments of the educational enterprise, such as community colleges, have served this segment of our clientele very well. But no segment of higher education – public or private, non-profit or proprietary – should assume entitlement in the market. Moreover, those who throw stones at new entrants by raising questions about quality, rigor, and integrity, would do well to examine their own programs and practices before judging others.

Indeed, all parties would do well to view distance, distributed, and online learning as a new, fourth sector of higher education, residing along side (and not behind) research universities, residential colleges, and commuter institutions. The boundaries that separate each sector and their respective clientele are increasingly porous. Growing numbers of institutions firmly planted in one sector are see more students from other sectors arrive on their campuses: universities pursue part-time adults learners, while community colleges develop honors programs to serve a growing number of middle- and upper-ability, middle- and upper-income students who matriculate directly from high school.

With perfect hindsight, Howard Bowen's 1974 projections anticipating some 20 million college students by 2010, once summarily dismissed by most in the academic community, now seem right on target.[10] Access, lifelong learning, and information technology are converging on American colleges in ways that go well beyond the aspirations articulated in hundreds of keynote speeches over the past three decades. The American postsecondary enterprise continues to evolve, changing slowly at the traditional center and faster on the perimeter. As American higher education enters the 21st century, we who work in and around academe should remember that we do live in interesting times. And we should indeed be careful about what we wish for, as these things frequently come to pass, ultimately leaving us with the question, "now what do we do?"

[9] "Still the Youngest Mind: An Interview with Peter Drucker." *Forbes*, 10 March 1997, p. 127.

[10] Bowen, H. R., "Higher Education: A Growth Industry?" *Educational Record*, 55, Summer 1974

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